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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,047	09/08/2003	Dan A. Marohl	008218	3266
26185	7590	02/09/2006	EXAMINER	
FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			ELEY, TIMOTHY V	
			ART UNIT	PAPER NUMBER
			3724	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,047

Applicant(s)

MAROHL ET AL.

Examiner

Timothy V. Eley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-19 and 21-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,5-13 and 22 is/are allowed.
- 6) ☒ Claim(s) 14-19,21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 14-19, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In claim 14, lines 7 and 8, applicant recited that the lower portion and the upper portion each have a tapered section along the outer diameter. However, in claim 14, lines 5 and 6, applicant recites that the upper portion has the outer diameter, so it is not readily apparent as to exactly how the lower portion can have a tapered section along the outer diameter of the upper portion. It would appear that claim 14, lines 7-9 is awkwardly worded.
- In claim 19, line 7, "the bottom surface" lacks proper antecedent basis, since applicant previously recited two bottom surfaces in claim 19, lines 5,6, and 7.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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4. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Jackson et al (5,643,061).

- Jackson et al disclose a retaining ring for a carrier head for use in a chemical mechanical polishing having a substrate receiving recess, comprising; a generally annular lower portion having a bottom surface for contacting a polishing pad, wherein the bottom surface includes a plurality of channels; and a generally annular upper portion secured to the lower portion, the upper portion having an outer diameter with an annular projection (at 105 in figure 7); wherein the lower portion and the upper portion each have a tapered section along an outer diameter and the tapered sections form a unitary section(at 107 in figure 7), the lower portion and the upper portion being formed as a single unit. See figures 7,9, and 10.

5. Claims 19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Perlov et al(6,143,127).

- Perlov et al disclose a retaining ring for a carrier head for use in chemical mechanical polishing having a mounting surface for a substrate, comprising; an inner diameter with a continuously tapered surface(at 150' in figure 6A) and a cylindrical vertical surface(at 140' in figure 6 A), wherein the continuously tapered surface is adjacent to an upper surface(at 142 in figure 6A) of the retaining ring and the cylindrical vertical is adjacent to a bottom surface(opposite the surface at 142 in figure 6A) of the retaining ring, the inner diameter of the retaining ring is

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smaller toward the bottom surface than toward a top surface of the retaining ring and the bottom surface is configured to contact a polishing pad during polishing. The surface at 142 in figure 6A may be considered to be the top surface, and the surface opposite to surface 142 may be considered to be the bottom surface, since it may be contacted with a polishing pad used for actually polishing the bottom surface (Note, applicant does not recite that the polishing pad is used during chemical mechanical polishing).

- Regarding claim 21, the retaining ring as seen in figure 6A includes an outer diameter with a flange above the numeral 144.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

- Claims 14, 15, 16, and 23 are rejected under 35 U.S.C. 103 as being unpatentable over Jackson et al.
- Jackson et al is explained above.
- Jackson et al does not disclose that the annular lower portion and the annular upper portion are separate.
- However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to divide the retaining ring into separate annular lower and annular upper portions, since it has been held that constructing a formerly integral structure in various elements involves only routine

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skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Furthermore, providing upper and lower portions would reduce costs since the complete retaining ring would not have to be replaced.

- Regarding claim 15, the annular projection comprises a horizontal lower surface, a horizontal upper surface and a vertical cylindrical outer surface connecting the lower surface and the upper surface.
- Regarding claim 16, Jackson et al does not disclose the exact dimensions of the inner diameter surface. However, the exact dimensions of the inner diameter surface would have been obvious to one having ordinary skill in the art at the time the invention was made since the size of the inner diameter would depend upon the dimensions of the workpiece to be processed.
- Regarding claim 23, the lower portion includes a vertical surface(at 106 in figure 7) adjacent to the bottom surface.

7. Claims 14,16, and 17 are rejected under 35 U.S.C. 103 as being unpatentable over Cesna et al(6,089,961).

- Cesna et al disclose a retaining ring(30) for a carrier head for use in a chemical mechanical polishing having a substrate receiving recess, comprising; a generally annular lower portion having a bottom surface for contacting a polishing pad, and a generally annular upper portion, the upper portion having an outer diameter with an annular projection (figures 1 and 2);

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wherein the lower portion and the upper portion each have a tapered section along an outer diameter and the tapered sections form a unitary section, and the lower portion and the upper portion being formed as a single unit.

- Cesna et al does not disclose a plurality of channels in the bottom surface of the retaining ring nor the annular lower portion and the annular upper portion being separate.
- Jackson et al discloses a plurality of channels in the bottom surface of a retaining ring for aiding in circulating slurry about a workpiece within the ring for assuring a thorough mixing and distribution of the slurry and decreasing the likelihood of inhomogeneities. See column 5, lines 56-59.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Cesna et al device by providing channels in the bottom surface thereof for aiding in circulating slurry about a workpiece within the ring for assuring a thorough mixing and distribution of the slurry and decreasing the likelihood of inhomogeneities as taught by Jackson et al.
- It would have been obvious to one having ordinary skill in the art at the time the invention was made to divide the retaining ring into separate annular lower and annular upper portions, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the

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art. *Nerwin v. Erlichman*, 168 USPQ 177, 179. Furthermore, providing upper and lower portions would reduce costs since the complete retaining ring would not have to be replaced.

- Regarding claim 16, *Cesna et al*, as modified, does not disclose the exact dimensions of the inner diameter surface. However, the exact dimensions of the inner diameter surface would have been obvious to one having ordinary skill in the art at the time the invention was made since the size of the inner diameter would depend upon the dimensions of the workpiece to be processed.

Allowable Subject Matter

8. Claims 1,5-13, and 22 are allowed.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

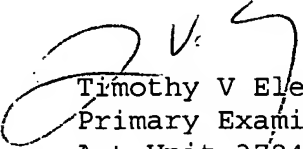
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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V. Eley whose telephone number is 571-272-4506. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N. Shoap can be reached on 571-272-4514. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Timothy V Eley
Primary Examiner
Art Unit 3724

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